

ABSTRACT

The present invention relates to a system and method for controlling electrical heating of an element to maintain a constant electrical resistance, by adjusting electrical power supplied to such element according to an adaptive feedback control algorithm, in which all the parameters are (1) arbitrarily selected; (2) pre-determined by the physical properties of the controlled element; or (3) measured in real time. Unlike the conventional proportion-integral-derivative (PID) control mechanism, the system and method of the present invention do not require re-tuning of proportionality constants when used in connection with a different controlled element or under different operating conditions, and are therefore adaptive to changes in the controlled element and the operating conditions.